

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: 3D Seismic on State land	Proposed Implementation Date: December 2011
Proponent: Terra-Sine Resources, LTD, 185,550 71 st Avenue SE, Calgary, Alberta T2H 056	
Type and Purpose of Action: Terra-Sine Resources, LTD has made application to conduct 3D Seismic Survey on State land in Sheridan County. Terra-Sine Resources, LTD will be the contractor conducting the seismograph operation on the State land for the company Ridge Petroleum Corporation; 3175 Cole St, Golden, Colorado 80401 holds the oil and gas lease. The project is described as the Grenora 3-D project under permit number 1569.	
Location: Lots 1, 2, 3, 4, W2, Sec. 16 Twp. 32N Rge. 59E	County: Sheridan

I. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED: Provide a brief chronology of the scoping and ongoing involvement for this project.	Scott Nowak, permit agent for Terra-Sine Resources, LTD contacted the Department of Natural Resources and Conservation, Minerals Management Bureau, Helena Office. The Montana Department of Natural Resources and Conservation, Glasgow Unit Office was contacted to complete the Environmental Assessment process for the seismograph survey. Terra-Sine Resources Limited has applied for a permit from the Department of Natural Resources and Conservation to conduct a 3D seismograph survey operation on State land. Terra-Sine Resources LTD has sent maps to the Glasgow Unit Office showing project locations.
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	The other agencies that would have jurisdiction for this type of project would be the Montana Board of Oil and Gas, Montana Secretary of States Office, Sheridan County Commissioners. Glasgow Unit Office has contacted Montana Fish Wildlife & Parks for their comments concerning this proposed seismic project.
3. ALTERNATIVES CONSIDERED:	<p>Action Alternative: Grant a permit to the Terra-Sine Resources LTD to conduct a 3D seismic survey project on State land.</p> <p>No Action Alternative: Deny a permit to Terra-Sine Resources LTD to conduct a 3D survey project on State land.</p>

II. IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	POTENTIAL IMPACTS
4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compatible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?	Action Alternative: The seismograph project will alter the surface soils on the state land through some compaction. The soil compaction will occur under frozen ground conditions and the impacts will be minimal. The surface soils will retain the same capabilities of producing

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	<p>native rangeland vegetation and dryland small grain crops upon completion of activities.</p> <p>No Action Alternative: Under this type of alternative, no impacts would occur on the surface soils.</p>
<p>5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>Action Alternative: The seismograph project on this State land tract will not impact the water quality, quantity and distribution. The State land contains a perennial stream identified as Cottonwood Creek that has water during most of the year. This water resource will not be impacted as the river will contain frozen water during winter months. There will be minimal impacts to the prairie potholes on the State land.</p> <p>No Action Alternative: Under this type of alternative, no impacts would occur on water quality, quantity and distribution.</p>
<p>6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>Action Alternative: The seismograph project on the State land will have minima impacts to the air quality. Some pollutants will become airborne from various types of seismograph equipment.</p> <p>No Action Alternative: Under this type of alternative there would be no impacts to air quality.</p>
<p>7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?</p>	<p>Action Alternative: The native vegetation on the project area will become compacted from heavy equipment during frozen conditions. The dryland agriculture acreage will have no crops during the winter months and impacts to soil compaction will be minimal. The impacts will be minimal and the area will continue to produce native vegetation and small grain crops.</p> <p>No Action Alternative: Under this alternative there would be no impacts to native vegetation or small grain crops.</p>
<p>8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>Action Alternative: The state land contains habitat types for wildlife and upland birds. The project will be short term and there will be minimal impacts to the habitat types. The Montana Natural Heritage Program has identified the following as Species of Concern: Mammals: Northern Shorttailed Sinew, Aortic Shrew, Preble's Sinew. Birds: Clark's Grebe, LeConte's Sparrow, Nelson's Sparrow, Sprague's Pipit, Golden Eagle, Great Blue Herron, Burrowing Owl, Ferruginous Hawk, Chestnut-collard Longspur, Piping Plover, Black Terri, Sedge Wren, Bobolink, Whooping Crane, Caspian Tern, Franklin's Gull, Loggerhead Shriek, Black-crowned Night-heron, McCowens Longspur, Forster's Tern, Common Tern. The seismic activities will have minimal impacts to mammals or various bird species.</p> <p>No Action Alternative: Under this alternative there would be no impacts to the habitat types.</p>
<p>9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED</p>	<p>Action Alternative: The area of impact contains</p>

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ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern?	no known unique, endangered, fragile or limited environmental resources. No Action Alternative: Under this alternative there would be no impacts to the State land environmental resources.
10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	Action Alternative: The state land contains no known historical, archaeological or paleontological sites according to an on-site inspection by Glasgow Unit Office personnel. No Action Alternative: Under this alternative no project would occur on the State land.
11. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	Action Alternative: This type of project on State land will not impact the aesthetics of the state land. The seismic operation will not be visible on the State land by the general public. No Action Alternative: Under this alternative there would be no impacts on the State land.
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	Action Alternative: This type of project on State land will place no demands on the environmental resources of land, water, air or energy. No Action Alternative: Under this alternative there would be no demands on environmental resources of land, water, air or energy.
13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract?	Action Alternative: This type of project on State land will not impact other studies, plans or projects that the Department of Natural Resources and Conservation may have in place on the State land. No Action Alternative: This alternative would have no impacts to other environmental documents pertinent to the State land.

III. IMPACTS ON THE HUMAN POPULATION	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
14. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	Action Alternative: This type of project on State land has minimal human health and safety risks. The risks are understood by the employer and employee as occupational hazards. The seismic company will employ professional personnel to perform the seismic operation and this will greatly mitigate health and safety risks. No Action Alternative: This type of alternative will have no impacts to human health and safety.
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	Action Alternative: The project will have minimal impacts to the current livestock grazing and dryland agriculture activities that may be occurring on the State land.

	No Action Alternative: Under this type of alternative there would be no impacts to agriculture activities on the State land.
16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	<p>Action Alternative: The project will have no impacts on the quality and quantity and distribution of employment.</p> <p>No Action Alternative: Under this alternative there would be no impacts to quantity and distribution of employment.</p>
17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	<p>Action Alternative: The project will have no impacts on the local and state tax base and tax revenues.</p> <p>No Action Alternative: Under this type of alternative there will be no impacts to the local and state tax base and tax revenues.</p>
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?	<p>Action Alternative: The project will place no demands for government services.</p> <p>No Action Alternative: Under this alternative there will be no impacts for the demand for government services.</p>
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	<p>Action Alternative: The project will not impact locally adopted environmental plans and goals.</p> <p>No Action Alternative: Under this alternative there would be no impacts on locally adopted environmental plans and goals.</p>
20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	<p>Action Alternative: The area of impact has recreational values such as hunting whitetail deer and upland birds. The project is short term and there will be no impacts to the recreational values associated with this State land tract.</p> <p>No Action Alternative: Under this type of alternative there would be no impacts to the recreational values associated with the State land.</p>
21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	<p>Action Alternative: The project will not impact the density and distribution of population and housing.</p> <p>No Action Alternative: Under this alternative there would be no impacts to density and distribution of population and housing.</p>
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	<p>Action Alternative: The project will not disrupt the traditional lifestyles of the local community.</p> <p>No Action Alternative: Under this alternative there would be no disruption of native or traditional lifestyles of the local communities.</p>
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	<p>Action Alternative: The project will not impact the cultural uniqueness and diversity of the area.</p> <p>No action Alternative; Under this alternative</p>

